February - March 1972

EMO

Tsunami Warning in B.C.
Medical Stockpile
Emergency Welfare in Civil Disorders
Emergency Planning in Ontario
Town Planning for Local C.D.
Index - 1971

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Contents

Tsunami Warning in British Columbia 1
John H. Erb and P. J. Wall

Canada's Medical Stockpile 4
Dr. W. J. Connelly

Emergency Welfare Services in Civil Disorders 11
J. Rick Ponting

Emergency Planning in Ontario 17
N. W. Timmerman

Town Planning for Local Civil Defence 19
Sigfred Damgård

EMO National Digest Index—1971 23

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Editor: A. M. STRATON

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TSUNAMI WARNING IN BRITISH COLUMBIA

by
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During the 70 year period 1900-1969, 176 Tsunamis were observed or recorded in the Pacific.

Although most were minor, 35 caused casualties and damage near the source, and 9 caused widespread destruction throughout the Pacific. Is it any wonder then, that populations living in coastal areas around the Pacific are apprehensive about the prospect of being caught unaware by the dreaded wave.

Once a Tsunami has been generated, there is no way to stop it. Time and distance provide the only mitigating elements. The only way to escape it is to vacate low-lying coastal areas before the wave strikes.

Modern science and technology make it possible to detect a generated wave and to estimate its time of arrival at given destinations. Thus it is possible to warn coastal dwellers of an approaching Tsunami.

The Tsunami Warning System came into being after a devastating Tsunami, generated by an earthquake in the Aleutian Islands, April 1, 1946, caused widespread destruction and the loss of 159 lives in the Hawaiian Islands.

The System is an international co-operative effort including 19 Seismograph Stations, 44 Tide Stations, various communication services and dissemination agencies, organized solely for the purpose of warning coastal populations of the impending danger of approaching Tsunamis. Yet, in the early hours of March 28, 1964, a seismic sea wave (tsunami) surged up the Alberni Inlet to wreak havoc and destruction in the low-lying areas of the twin communities of Alberni and Port Alberni who had not been warned of the approaching danger.

There had been radio reports of a severe earthquake in Alaska at 5:36 p.m. the previous evening.

Someone reported hearing a foreign radio warning coastal communities that a tsunami had been generated by the earthquake.

As a matter of fact, communities all around the Pacific rim were being warned by the Seismic Sea Wave Warning System. That is, all *but* Canadian communities.

It was common knowledge that an international Tsunami warning system existed and yet we were not warned. Why?

The reason lay in an ironic message sent to the warning system by the Canadian Department of Transport on June 25, 1963. It simply stated: "The Canadian Committee on Oceanography has now agreed that these warnings do not need to be promulgated in British Columbia and the Department has confirmed this decision."

The irony derives from the fact that Provincial Civil Defence, after several years of negotiation, had only in January 1963 been formally included as a tsunami warning receiving and dissemination station.

And only in February had arrangements been completed whereby, upon receipt of a warning telephone call from Civil Defence, the Canadian Broadcasting Corporation would undertake to alert "all radio stations on the coast including Prince Rupert."

British Columbia's Civil Defence could, for the first time, feel confident that their coastal citizens could be warned in the event of an approaching Tsunami. However, the elation was to be short-lived, for on July 2, the Regional Director, E.M.O. had to advise the Deputy Provincial Secretary as follows:

> "The Department of Transport in a communication dated June 25, 1963, have advised that Tsunami warnings have been discontinued. This decision is based on recommendations of the Canadian Committee on Oceanography."

Thus, when the unexpected happened and Canada experienced the first assault of the dreaded Tsunami, she was without a warning system by her own choice.

Figure 1. Boat left high and dry in a back alley two miles inland from its mooring.

The Alberni Disaster re-emphasized the urgency of the need for a Tsunami warning system for British Columbia's coastal dwellers and Civil Defence intensified its efforts to get reinstated in the international warning system.

Again, negotiations were exceedingly protracted largely due to the demands of protocol which require

that negotiations with a foreign agency be routed through certain established, though circuitous channels. These negotiations continued from early June until mid-December 1964 before Civil Defence was formally advised that it was again part of the warning system.

The line of communications arranged for routing messages to Provincial Civil Defence at that time was as follows:

"Honolulu Observatory telephone/teletype to Naval Communications Station, Honolulu, thence via Defence Communication System to U. S. Naval Communications Unit, Seattle, Washington, then teletype to Royal Canadian Navy Communication Station, Victoria, B. C., thence telephone to Provincial Civil Defence Co-ordinator."

Figure 2. Truck up-side-down in the basement of a house which was removed by the wave.

The line of communication at the Provincial level took the following route.

- The Royal Canadian Navy Communications Station, Victoria, B. C. telephones the warning or information bulletin to the Provincial Civil Defence Co-ordinator care of a telephone answering service in Victoria. The telephone answering service delivers the message to the Provincial Civil Defence Co-ordinator or officers of his staff. The officer contacted informs his superiors and calls one of four alternate R.C.M.P. officers to determine the necessity for further dissemination.
- If decided to warn local levels (threatened municipalities) one or a combination of two methods will be used:
  - (a) R.C.M.P. will warn their detachment commanders by R.C.M.P. wireless. Those warned alert the local Civil Defence Co-ordinator and Mayor or Reeve.
  - (b) As the threat and its potential develop and clarify:
    1. General alarm will be issued to threatened areas by public broadcast over local radio stations.
    2. Municipal officials warn populace by all possible means."

The first tsunami warning via the system was received by Provincial Civil Defence February 3, 1965. The warning was received in reasonable time and effectively disseminated to the threatened areas. Where the threat seemed most menacing the local population was warned and evacuated to higher ground.

Although the threatened assault did not materialize, the system was well tested and proved capable of its task.

The tremendous Tsunami damage to Alaska coastal communities following the 1964 earthquake, and the constantly high level of seismic activity in the Aleutian-Alaska region, suggested a need for a more locally directed warning system.

In 1967 the Alaska Regional Tsunami Warning System was established. It is directed from Palmer Observatory and its primary function is to detect and locate major earthquakes in this region and in the event that a Tsunami generation is possible or probable, provide effective Tsunami information and warnings to areas within this region likely to be affected.

Because of the direct effect of seismic disturbances in Alaska on Canadian coasts, British Columbia is included in the agencies receiving Watch and Warning information from Palmer Observatory. This provides reasonable assurance that whenever a Tsunami is generated, regardless of its point of origin, British Columbia will be warned as soon as possible.

Because of the circuitous routing of some of the lines of communications, intolerable delays in test warnings have periodically occurred.

In 1971 new lines of communication were negotiated which provide more direct routes from Honolulu and Palmer Observatories to Provincial Civil Defence, and hopefully will remove unnecessary delay in receiving warnings in time of impending disaster. The new lines are from the Office of Civil Defense, Bothell, Washington, via telephone to R.C.M.P. "E" Division Headquarters in Victoria, thence to Provincial Civil Defence Co-ordinator.

Civil Defence has also made arrangements for quick entry into the coastal Broadcast Systems through Broadcast News Service. When it is considered necessary to alert coastal communities, the R. C. M. Police alert their detachments via the R.C.M.P. Radio network and Civil Defence alerts the broadcast media through Broadcast News.

Although most of the arrangements had been completed by 21 September it was decided to delay the actual testing until the day of the Cannikin event, an underground 5 megaton nuclear test detonation on Amchitka Island.

Because of the magnitude of the test detonation and the fact that Amchitka is located in a seismic active area, the Alaska Regional Warning System arranged for Watch and Warning messages to be transmitted on the day of the test.

Figure 3. Buildings and vehicles piled in a corner of an auto court.

Based on technical information in the hands of Civil Defence the possibility of an earthquake being triggered and a Tsunami generated was considered to be extremely remote.

However, because of its role as the provincial watchdog and to help allay unnecessary public apprehensions, Provincial Civil Defence Head Office and Zone Offices were placed on a 48 hour continuous standby starting 6 hours prior to the time of detonation.

Because the event took place on a Saturday, special arrangements were made to keep the government telephone switchboard open for the weekend if necessary.

One hour before the detonation the following message was transmitted by Palmer Observatory:

"THIS IS A PALMER BULLETIN NR. 1.
THIS IS A TSUNAMI WATCH.
THE AEC WILL CONDUCT A NUCLEAR TEST CODE NAME CANNIKIN AT AMCHITKA ISLAND AT 062200Z NOV.
DUE TO THE SIZE OF THE DEVICE AND THE FACT THAT AMCHITKA IS LOCATED IN A SEISMIC ACTIVE AREA, A TSUNAMI WATCH IS BEING ISSUED FROM ATTU TO UNALASKA ALASKA.
IT IS NOT KNOWN IF A TSUNAMI WILL BE GENERATED."

One hour following the test Civil Defence received this message:

"THIS IS A TSUNAMI WATCH CANCELLATION BUL. NR 2.
AEC HAS CONDUCTED A NUCLEAR TEST AT AMCHITKA ISLAND AT 06 2200Z NOV.
THE MAGNITUDE OF THE EVENT WAS NOT OF TSUNAMI GENERATING SIZE.
THE TSUNAMI WATCH FROM ATTU TO UNALASKA IS CANCELLED.
ALL AGENCIES ASSUME ALL CLEAR UPON RECEIPT OF THIS MSG. BT"

The contents of the message were relayed via telephone to Broadcast News who immediately put the information on the teletype to all coastal Broadcasting Stations.

Figure 4. The wave lifted a building off of its foundation and when the waters receded the building came down on the car.

The system tested out well, but constant watch and observation will continue to assure as far as humanly possible that our coastal populations will be warned if, when and how ever the peril of an approaching tsunami shall threaten their lives and their communities.

The Civil Defence route toward getting established as a responsible agency for receiving and disseminating

(*Continued on page 22*) **TSUNAMI**

CANADA'S NATIONAL MEDICAL STOCKPILE

by
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Canada has a large national stockpile of self-contained medical units and other medical supplies. If this equipment were to be used, in peacetime or wartime disasters and in an effective manner, the casualty survival rate could approach the high levels (96 to 98 per cent) which were achieved by the military medical services in recent conventional wars. If casualties were denied adequate medical care in disaster due to lack of equipment and facilities, then their survival rates undoubtedly would drop to the levels found in mid-nineteenth century wars. Should they be denied the basic needs for shelter, food, warmth and simple nursing these levels would drop even further.

The Emergency Health Services, Department of National Health and Welfare medical stockpile valued at 20 million dollars consists of packaged emergency medical units ready for use in major disaster situations. These units are available for release to provinces for pre-positioning in selected communities where certain storage conditions can be met and where physicians and other key health workers are prepared to take operational charge of equipment. The major stockpile units are Emergency Hospitals, each with a capacity of 200 beds; Advanced Treatment Centres and Casualty Collecting Units with equipment to give emergency medical care to 500 casualties; Emergency Blood

Figure 1. UNLOADING EMERGENCY HOSPITAL AT PHAN THIET, VIET NAM

Depots; and Emergency Public Health Laboratories. In addition training equipment and supplies for these medical units are provided.

The value of the stockpile has already been demonstrated in disasters occurring inside and outside Canada. Twenty emergency hospitals have been shipped to South Vietnam for civilian use. A 50-60 bed emergency hospital was flown to Yellowknife, N.W.T., and was in operation within 12 hours of the destruction, by fire, of the Stanton-Yellowknife Hospital in May 1966. Additional hospitals have been sent to Nigeria. These units have been replaced, packaged and redistributed within the stockpile.

In addition two members of Emergency Health Services (a medical and a technical consultant) went to South Vietnam from September 1966 to November 1966 and one other followed in December 1966 to provide three months of medico-technical assistance in instructing Vietnamese personnel and in "setting up" the hospitals given to the South Vietnam Government. In 1970 two technical consultants from E.H.S. went to Nigeria to provide similar technical assistance in the hospitals given to the Nigerian Government. A medical consultant visited Niger in the same year to provide assistance to that country regarding the shipment of medical supplies and equipment.

The National Medical Stockpile

The stockpile has been growing steadily since 1952. At that time, the Government of Canada made the decision that a stockpile must be built up to assist the health services of Canada in providing medical and hospital care for the large number of civilian casualties likely to result from a nuclear attack. In 1966, the Cabinet formally approved the use of the stockpile equipment in peacetime disasters.

The Stockpile, consisting of many thousands of self-contained medical units, has been developed by the Emergency Health Services (EHS) Division of the Department of National Health and Welfare. All units are carefully packaged for long term storage, and to assist in rapid assembly of the units under disaster conditions each sub-unit is functionally packed in colour-coded boxes.

To ensure that perishable items are fresh at all times, there is a comprehensive quality control program which permits rotation and continual replacement of such items.

Over the past few years these units, which had been stored in regional depots, have been pre-positioned at a steady rate in strategic locations close to the many large cities in Canada. A number of provinces have completed this pre-positioning program and others are continuing with it as locations for convenient storage are found and approved.

HEALTH SUPPLIES ISSUED BY EHS FOR INTERNATIONAL DISASTERS

	Cost
Earthquake Disasters	
Medical supplies, antibiotics, drugs, x-ray units, surgical instruments, etc., were sent to the following countries to provide assistance following earthquake disasters:	
Agadir—Morocco—4 March 1950	$ 3,319
Chile—27 May 1960	$ 4,552
Iran—September 1962	$ 5,296
Cyprus—August 1964	$ 5,000
Turkey—August 1966	$ 29,500
Tunisia—November 1969	$ 1,290
Peru—June 1970	$ 20,000
Emergency Hospitals	
Emergency Hospitals were shipped to the following countries:	
South Viet Nam—July 1966	$ 1,410,000
Nigeria—January 1970	$ 280,700
Other International Disasters	
Medical supplies, drugs, dressings, intravenous solutions and giving sets, stretchers, beds, etc., were sent to the following countries to provide assistance following large scale floods, hurricanes, and to provide medical help for refugees. In addition, large tropical first aid kits were sent overseas to provide assistance to Canadian personnel working on projects in the developing countries:	
Biafra—August 1968	$ 18,000
Exhibition Commission—Africa—November 1969	$ 325
Niger—February 1970	$ 49,000
East Pakistan—November 1970	$ 67,000
Niger—February 1971	$ 3,400
Cameroun—June 1971	$ 500
East Pakistan—June 1971	$ 42,000
Total	$ 1,939,882

The total weight of this equipment supplied in the decade is in the region of 1600 tons.

Conditions for Release of Medical Units for Pre-Positioning

To ensure that emergency medical units will be used effectively and that the equipment does not deteriorate in storage in strategic locations in provinces, there are certain basic conditions attached to their release. Such conditions as agreed between the Minister of National Health and Welfare and the Ministers of the Provincial Health Departments include the following:

1. The equipment remains the property of the Federal Government.
2. The selection of communities and hospitals to receive the emergency medical units is made by provincial health authorities, with the concurrence of the federal government.
3. Storage conditions must be of high standard. The standards have been defined.
4. Communities must designate key health personnel to take charge of the equipment and to undertake to train others in its use in order to receive emergency medical units.

Conditions for Release of Medical Units for Use in Peacetime Disasters

The equipment may not be used except in a real disaster situation and with the approval of the Federal Government. Administrative arrangements have been made with all provinces for such approval to be given immediately by Federal/Regional Emergency Health Services Directors should there be any problem in communicating with Ottawa. Thus it is not anticipated that there will be any time-delay in making use of an emergency medical unit when required under disaster conditions. The effectiveness of strategical deployment of emergency medical units within provinces depends on the development of provincial emergency health plans and on the full cooperation and support of the medical profession. To ensure knowledgeable, rapid response to emergency situations, specially packaged training units to exercise medical personnel are available in each province and may be used any time.

Hospitals which have developed effective disaster plans and have had such plans approved by the Provincial Emergency Health Services have received hospital disaster supplies units. Some 2,560 units have been distributed to 459 hospitals to date. The allocation of supply units to a hospital is one unit per 25 beds.

The Use of Emergency Medical Units in Peacetime Disasters

Any of the emergency medical units pre-positioned at storage locations in the provinces and in particular the casualty collecting units, advanced treatment centres and emergency hospitals may be committed for use in peacetime disaster. In each reserve location, emergency hospitals are stored in a manner which will permit a smaller unit (50 to 60 bed hospital) to be selected from storage with the minimal delay. Such units would be of maximum use in northern Canada should disaster occur in or near one of the smaller hospitals.

Casualty Collecting Units

Many Casualty Collecting units have been pre-positioned at international airports for emergency use in the event of any air disaster within the environs of the airport. Consideration is being given at the present time to having portions of casualty collecting units

Figure 2.
RESUSCITATION AREA

Figure 3.
STERILIZING
AREA

positioned at smaller airports, particularly in the Canadian Arctic. In a number of provinces these units have been divided into three parts to enable a wider distribution of the medical equipment and supplies for peacetime disasters. These units are so packaged that the wirebound boxes can be readily opened by hand in an emergency. Each casualty collecting unit contains sufficient supplies of first aid equipment, stretchers and blankets to provide for the needs of 500 casualties, when operated in conjunction with the parent Advanced Treatment Centre.

Advanced Treatment Centres

The function of the Advanced Treatment centre is to provide for the emergency sorting of casualties and for early resuscitation of the seriously injured. They are unique to Canada and were primarily designed for use in wartime. Unlike the casualty collecting units, however, they cannot be divided into smaller units because many of the major items are not duplicated in the unit. These units contain surgical instruments, anaesthetics, dextran, splints, etc. Each is composed of some 82 packages which are easily transportable in trucks, light aircraft or light trailers. They are of particular value in disasters such as mining accidents or train wrecks which may occur in situations remote from a hospital. They will enable physicians to sort casualties into priorities for evacuation, and provide for the early resuscitation of persons who may not survive the stress of being transported over a long distance to a hospital.

Emergency Hospitals

There are some 200 EHS Emergency Hospitals in the national medical stockpile. Each has a capacity of 200 beds. The unit contains sufficient medical supplies and equipment to provide for the needs of 200 casualties suffering from multiple conditions and has enough supplies to make it self-sufficient for one week. The emergency hospital is designed to be set up in a permanent building such as a large school or office. Schools with 14 or more classrooms and some 15,000 to 18,000 square feet of usable space will provide ample accommodation.

One box-car or two large trailer-transports are required to transport an emergency hospital from a storage location to a disaster site. Approximately 70 man hours of unskilled labour is required to off-load and distribute the boxes. In common with all of the other emergency medical units in the stockpile, packing crates of the emergency hospital are colour-coded to enable the various functional areas of the hospital to be selected rapidly. Many of the surgical instruments required for immediate use such as cut-down trays, catheter trays, etc., are already assembled and prepared for autoclaving. The hospital unit contains a 3 kilowatt generator for the x-ray equipment, a larger 10 kilowatt generator for the surgical electrical apparatus, a 1500 gallon water tank and an electrical water pump. If personnel are reasonably familiar with the equipment the emergency hospital can be rapidly set up and made ready to receive patients in some three to four hours or even less.

Each piece of boxed equipment is readily identifiable by a catalogue number. A number of equipment manuals which pertain to the unit are provided. An alphabetical listing and distribution supply manual makes the selection of equipment and supplies a very simple task.

The emergency hospitals can be used in disaster situations which call for additional hospital beds or for

Figure 4.
OPERATING
ROOM

the replacement of hospital beds actually destroyed in a disaster and as mentioned earlier can be broken down to 50-60 bed units as was done at Yellowknife.

LOGISTICS FOR TRANSPORTATION OF EMERGENCY MEDICAL UNITS BY AIR IN PEACETIME DISASTER

LOGISTICS

The aircraft generally used for this purpose is the C130 Hercules

Unit		*Range*	*Number of aircraft required*
200 Bed Emergency Hospital		900 Miles	one
		4000 "	two
50-60 Bed Emergency Hospital		4000 "	one
Advanced Treatment Centres	(9)	1000 "	one
	(4)	4000 "	one

Emergency Blood Services

The Canadian Red Cross Blood Transfusion Depots are located in major cities. Should these be destroyed in a nuclear attack, alternative arrangements have been made for the collection and distribution of large volumes of blood to complement the large stocks of dextran and electrolytes available from emergency medical units in the national medical stockpile. Thirty emergency blood depots which form the counterparts of the Canadian Red Cross blood transfusion depots are available from the stockpile. When fully manned each of these depots will have the capacity of bleeding 3600 donors every 24 hours and will be able to group and type 3600 units of blood in plastic bags. A rotation program with the Canadian Red Cross Society has been in effect for many years to ensure that the stocks are constantly fresh.

Blood Donor Packs

Blood Donor Packs have been distributed to existing hospitals for a number of years now. The number of packs given depends on the rated bed-capacity of the hospital. Each pack contains sufficient supplies and equipment to enable a hospital to collect, group and type blood obtained from 100 local donors. One such pack is included with each packaged emergency hospital. In peacetime disasters it is most unlikely that the Canadian Red Cross blood transfusion service would be unable to meet the demand for units of blood required in a disaster area. In the event, however, that weather conditions do not permit blood to be transported from major depots, or from other hospitals by road, rail or air, the pre-positioning of such blood donor packs will make existing hospitals relatively self-

sufficient in an emergency. A film on the subject is available, together with specific manuals.

Emergency Public Health Laboratories

Provision has been made in the stockpile for equipment which will be used to reinforce the facilities of the Provincial Public Health Laboratories. Twenty such units have been assembled and at the present time are in the process of being packaged.

Training Facilities

Training units have been developed which are packaged in such a manner that they can be used for training purposes as well as in a real disaster. In addition to this extra boxes of supplies and equipment have been provided to assist in several phases of training.

There are some 16 Emergency Hospital Training Units together with 30 Advanced Treatment Centre Training Units and 30 Casualty Collecting Training Units available from the national medical stockpile. Four Emergency Health Laboratories will be held in the federal reserve for use as training units.

The supplies and equipment of a training unit can be easily unpacked and repacked as often as required and each unit contains all the supplies and equipment of an operational unit. They can be used operationally if required in the event of a disaster.

To ensure operational competence of the personnel who will manage emergency units in time of disaster a phased staff training program is required. The three phases of training are as follows:

Phase 1.—Individual training: Orientation; First Aid or Home Nursing if necessary.

Phase 2.—Functional area training: Unpacking; Setting up functional area; Packing.

Phase 3.—Unit training: Setting up whole unit; Casualty handling exercises.

Training Supplies

Each province has been provided with additional supplies and equipment for training purposes. These are packaged in readily accessible and transportable boxes for use by personnel who are preparing themselves to operate an emergency medical unit. The training supplies consist of the following items: For the casualty collecting unit and the advanced treatment centre there are 10 litter training packs per province, each containing litters, intravenous stands and blankets. Casualty-care training packs consist of five boxes containing the necessary equipment to set up or reinforce the following functional areas of a medical unit: sorting, resuscitation, major treatment, minor treatment and supplies. These packs are provided on a ratio of one per province.

A similar ratio of training supplies packs are provided which contain quantities of expendable dressings and simulated drugs.

Figure 5.
WARD AREA

Each province receives also a generous quota of casualty simulation supplies which are used by trained casualty simulators to inject realism into casualty handling exercises.

There are some 350 home nursing training kits distributed across the country and these are available through the Provincial Emergency Health Services directors. The kits are used to assist with training in community courses on home nursing.

Summary

Our National Medical Stockpile is large-scale and a valuable asset to our country. In an age of increasing technological complexity, the potential for large scale peacetime disasters increases with each decade. Medical services and administrative personnel must be acquainted with the details and handling of the medical units. Knowledge and experience of the medical units will provide specialist personnel with an increased capability to save lives in peacetime or wartime disasters.▲

O C D SURVEY

A recent United States Office of Civil Defence survey of local civil defence directors brought responses from 2,442 directors. Governor John E. Davis, Director, OCD, circulated the following analysis.

There was little question about goals. An overwhelming 79 percent of the responders said the public saw "preparedness for natural disasters" as the primary local civil defense mission; only 15 percent felt the public rated nuclear preparedness first.

Asked about their own attitude on priorities, as opposed to what the public expected, 65 percent of the directors saw natural disaster as the major program; and 29 percent said the emphasis should be on nuclear emergency.

The survey also showed civil defense had or was expected to have a role in civil disorder. Six percent of the directors responding thought the public wanted top priority given to civil disorder plans and a like six percent felt, themselves, that this was their major mission.

Asked about obstacles to progress, 46 percent of the responders saw "lack of interest" as the major problem. A little over 27 percent cited "lack of funds" as an obstacle. Only 2.4 percent thought that "a weak Federal program" was responsible for local problems.

"More funds" was cited by 25 percent of the directors as the "single most important thing" to improve local programs. Another 21 percent thought "better information programs" were necessary. "Upgrading the local civil defense coordinator" was felt by only 3.4 percent of the responding directors to be a major need.

Other suggestions for improvement called for more coordination and direction with and from other levels of government, elimination of pointless directions and red tape, a more realistic Federal program and more concentration on natural disaster preparedness.

It is well worth noting that this latter point has now been raised twice this year in Congress; first in OCD's appropriations hearing early in the year, and in the hearings inaugurated just last month by the House Armed Services Subcommittee on Civil Defense. The trend of both of these hearings shows Congress is trying to decide if civil defense needs more direct Federal support for its peacetime role in order to enhance its value as a strategic element of national defense.

The finding that broad public and official support exists for a stronger civil defense role in peacetime disaster could weigh heavily in any such congressional decision. This may well prove to be the most encouraging and significant result of this timely USCDC survey of civil defense."▲

EMERGENCY WELFARE SERVICES IN CIVIL DISORDERS

by

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and

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Mr. Ponting studying under a Canada Emergency Measures Organization fellowship recently presented this paper to an Emergency Welfare Services Management Course, at the Canadian Emergency Measures College, Arnprior, Ontario, July 22, 1971.

This paper deals with the needs, problems, and organization of emergency welfare services during a large-scale civil disorder or "riot," such as occurred in Watts, Newark, and Detroit in recent years. Although disorders of this magnitude have disappeared in the United States, there are indications that a "cultural lag" exists between Canada and the United States, whereby Canadian minority groups, after a period of time, adopt the tactics and ways of responding that they learned from their neighbours to the south. Thus, it would appear to be worthwhile to develop emergency plans to cope with these contingencies.

Clearly, the potential for large-scale violent disorder in Canada is very real. Although the so-called "F.L.Q. Crisis" of last autumn did not develop into a riot, it did serve to dissipate the smug Canadian myth that "it can't happen here." Indeed, it *can* happen here. It *will* happen here! The real question is: "Will we be ready for it?"

This paper is certainly not a comprehensive handling of the topic, due in part, to the fact that the topic has not really been addressed in the literature with which I am familiar. Thus, the approach here will focus on a particular case, that of Detroit (1967). Unfortunately, even here the data at hand were collected for another purpose. However, the data do yield certain insights which may be helpful for the purposes of planning.

The remainder of this paper, then, will fall under four sections. First, we will deal with the question of "what is a riot?" Second, a brief description of the Detroit riot will provide the setting for our case study. Next, we deal with the issue of the sources of mergency welfare needs. And finally, we discuss how emergency welfare services were handled during the Detroit riot.

The Dynamics of a Riot

Many Canadians were exposed, through the mass media, to pictures and verbal accounts of the riots which swept the United States during the 1960s. Unfortunately, those accounts tended to exaggerate the mood and the event. In addition, our recollection tends to be selective. To base a programme of planning on such stereotypes would, in my opinion, be an unfortunate mistake. This is not to say that we should not prepare for the worst. Rather, my point here is first, that not all riots were as severe as Watts, Newark, and Detroit, and secondly, even the worst riots should be viewed in their full context. Thus, a brief description of the dynamics of a large-scale riot is presented here, in the hope that it will facilitate informed and level-headed planning.

There are many different types of riots, including those by students, striking workers, and athletic event crowds (as in European soccer matches). But the kind having the greatest implication for emergency welfare services are the so-called "race-riot" type. Traditionally these have involved collective violence against persons and property, across racial or ethnic lines. More recently, these have taken the form of attacks, within the residential and commercial neighbourhoods of the subordinant groups, against the authority and property symbols of the dominant group.

There are many causes of these riots. The first is that the subordinant group must perceive itself as deprived relative to the dominant group. Secondly, either "legitimate" channels for bringing about change are blocked, or change has occurred which has raised the aspirations of the subordinant group to the point where opportunities for advancement cannot keep pace with racing expectations. Either way, frustration results. A third condition for a riot is a prior series of tension-heightening incidents related to the underlying grievances of the subordinant group. The fourth condition is a so-called "precipitating" event which sets the stage for a riot. This event may itself be routine or even trivial. It typifies existing grievances (e.g., police brutality) and causes the convergence of large numbers of people at the scene. And finally, there must be a resolution among the crowd that they have been wronged and that something must be done to rectify the injustice done to them. Different speakers ("key-noters") will offer suggestions as to what courses of action to take. If at least some of the crowd adopts a violent form of action, a riot is in progress.

Such a "riot" will evoke official response from agents of social control (e.g., police, mayor, etc.) which largely determine future courses of crowd action. When behavioural deviations go unpunished a sufficient number of times, they tend to become "normative" or expected and acceptable behaviour. These "emergent norms" (the crowds' own notions of right and wrong) tend to be violated by social control agents and the violators may be selected for attack.

In addition, previous grievances that have been talked about in the community for a long period of time constitute predispositions to act on the part of the crowd. An example of this is the burning down of dilapidated houses which have been condemned for urban renewal but which still have not yet been removed. Thus, there are numerous different complaints which result in multiple goals by various segments of the rioting crowd. The riot is, therefore, not a homogeneous phenomenon.

Many different forms of riot activity occur. Riots usually begin with less serious violence against property, such as rock and bottle throwing. Window breaking may follow, with looting following in turn. Most looters are not the same people who broke the windows. Looting is fundamentally a re-definition of property norms. That is, it is a bid for redistribution of property — a message that certain deprived sectors of the population want what they consider their fair share and are willing to resort to violence to get it. Looting concentrates on the prestige items that symbolize the good life. Most brick throwing, early looting, and burning is done by teenage and early twenty-year-old age groups of from 5 to 20 individuals. The groups tend to stay together and may even develop a system of task sharing. Later looting may involve out-of-towners who have come to exploit the situation.

Looting is often followed by burning. Some burning is done for the sheer excitement of seeing the fire department respond in its usual spectacular way. False alarms and arsons also enable the usually powerless ghetto dwellers to turn the tables on "the establishment" by exercising control over it for a change.

Disturbances usually follow a pattern of peaking violence between nightfall and early morning, followed by a slackening of riot activity during the day time. The curious or passive audience tends to diminish as the riot wears on, and this facilitates the cessation of the riot, since the rioters no longer have anyone to perform to or to gain support from. In addition, swelling the ranks of social control agencies with outside troops and the re-establishment of a facade of normalcy will tend to bring the riot to an end.

Characteristics of the Detroit Riot

The most direct and concise method of describing the disaster event is to present the facts in tabular and statistical form, which we have done in "Portrait of a Riot" These statistics are not presented in full. Rather they have been selected with two goals in mind:

- to portray the nature and extent of the disaster event;
- to highlight the implications for emergency welfare services.

Why the Need for EWS?

The need for emergency welfare services stems from several sources. Perhaps the most important source is the presence of fire as a disaster agent or "sub-agent." Detroit, incidentally, had more fires than any other riot of the 1960s. In Detroit, the statistics show that there were more fires in dwellings than in any other kinds of building. Thus, the need for emergency housing for the homeless becomes apparent. The second and third most frequent category of burned buildings were grocery stores and stores with apartments above them, which are common in the ghetto. This tells us first that the normal system of food distribution has been seriously disrupted, at least in the riot neighbourhood. And secondly, the burnings of the combined store-apartments contribute more people to the ranks of the homeless. Also, even if a home is not destroyed, smoke and water damage to the clothing inside may be severe. In addition, the popularity of dry cleaning establishments as targets for arson also depletes the victims' "wardrobes." And finally, when fires burn power lines this results in refrigerators going off, which in turn produces food spoilage and a need for welfare aid.

The second major cause for welfare needs in a large-scale riot is the disruption of the normal economy, especially if the riot area includes the downtown area. We find that businesses will close—sometimes at the request of the mayor, sometimes due to fear or inaccessibility for employees, and sometimes due to curfew—and that working days will be lost. The resulting loss of income may be sufficient to create welfare needs for those who were on the brink of poverty before the riot. Jobs may be disrupted or lost due to a place of employment being destroyed in the riot. Even the mails are affected by riots, and if regular cheques from established welfare agencies cannot be delivered to recipients who depend on them, then these recipients are likely to need at least emergency groceries. This happened in Detroit and is of particular importance due to the fact that many ghetto residents purchase their groceries for only one or two days at a time.

Arrests are a third source of welfare needs. In the first place, arrest may mean job disruption or job loss for the arrested, with the ensuing income disruption. In the case of mass incarceration and multiple detention it is common for families not to know where the prisoner is being held, not to be able to afford bail, and to be unable to gain transportation to the jail. While some of these problems may fall outside the domain of emergency welfare as traditionally defined, these problems do at least present the need for a registration and inquiry system. At the very least, it seems that the welfare officer in the community should raise the issue and make sure that some organization is prepared to shoulder these responsibilities. It would also seem that the emotional needs of prisoner and family would be appropriately handled under the "Personal Services" responsibilities of EWS.

A fourth source of welfare needs is profiteering. This is usually brought under control quickly. But while it exists inflated prices may be sufficient to create welfare needs for those who were able to "just get by" under normal prices.

Portrait of a Riot

1. Duration: 9 days (July 23-31, 1967)
2. Precipitating Event: police raid on an after-hours drinking joint.
3. Law Enforcement Forces Used: local police, state police, Michigan National Guard, U.S. Army
4. Deaths: 43
5. Injuries: 641
6. Breakdown of Injuries and Deaths:

	Injuries	*Deaths*
Citizens	72	17
Police Officers	167	1
Fire Fighters	273	2
Troops	20	1
Persons Committing Crimes	109	22
Total	641	43

7. Property Damage Estimate: $45 million
8. Fires: 682
9. Breakdown of Fires:

Type	*Number*
Dwellings (1 and 2 family)	102
Grocery Stores	57
Dwellings and Stores	44
Apartment Houses	37
Furniture Stores	24
Cleaners	20
Multiple Occupancies	16

10. Displaced Families: 274
11. Distribution of Criminal Charges:

"Looting" (Entering, Breaking and Entering, Larceny, Stolen Property)	62%
Curfew Violation	14%
Carrying Concealed Weapon	4%
"Serious" (Assault and Battery, Homicide, Attempted Homicide, Arson, Inciting to Riot)	2%
Other and Miscellaneous	19%
Total	100%

12. Arrests by Sex and Race:

	White	*Black*	*Total*	
Male	11%	77%	88%	
Female	1%	11%	12%	
Total	12%	88%	100%	(N = 6,528)

13. Adult Arrests by Age:

Age Category	*% of all arrestees*	*Cumulative %*
15-19	19	19
20-24	25	44
25-29	24	68
30-34	13	81

14. Marital Status of Arrestees: 39% married
15. Number of Children Arrestees Had:

No. of Children	*% of arrestees having this many children*	*Cumulative %*
1	17	17
2	16	33
3	10	43

16. Employment Status of Arrestees:
    Currently (July 1967) Employed 78%
    Currently (July 1967) Unemployed 22%
17. Income Level of Self-Admitted Rioters:
    Less than $2,000 ..... 14%
    $2,000 - $5,000 ..... 25%
    $5,000 - $7,500 ..... 14%

EWS has been defined as a system to be implemented when the structure of regular welfare programmes is inadequate in an emergency. The fifth source of emergency welfare needs was located not so much in the structure of these regular welfare programs, but in their simple shutdown. That is, it was not that they couldn't cope, it was that some just didn't try. Instead, they, too, were closed down like so many other businesses. In addition, they did not enjoy a reputation of courtesy and efficiency. Thus, many people who had never been on public welfare before, but had welfare needs now, preferred to go to the emergent welfare organization which had less stigma attached to it.

Another source of welfare needs is the disrupted transportation system. Victims were unable to use the public transit system to obtain groceries, since it did not service the riot area. Similarly, many automobiles were damaged and burned in the riot, rendering them useless. Thus, the need was for a welfare distribution centre located in each of the afflicted neighbourhoods.

A final source of welfare needs was the emotional disorientation suffered by many persons. We have reference here not only to the prisoners (of whom 10% were age 16 or less) and their families, but also to young troops and especially blind residents in the riot area. These people require emotional first aid such as EWS workers are trained to provide.

Emergency Welfare Services in the Detroit Riot

Perhaps the easiest way to describe what actually did occur in our case study is to describe the organization

of the overall emergency welfare response and to conclude with a detailed discussion of the problems which arose.

The overall response can be summarized in terms of the lack of preparedness of the part of the established welfare agencies. This gap in the services provided by the established agencies led to the emergence of a new organization of volunteers to cope with the welfare needs presented by the riot. Unfortunately for the purposes of this paper, our data pertain mostly to this one emergent organization which involved itself mainly (but not exclusively) in only one of the five EWS services, that of providing food. However, our data do permit us to paint the overall picture in broad strokes and to examine in detail many problems faced by the emergent organization such as might be faced by EWS.

Most organizations learned of the riot through indirect and unofficial channels since the police secured the cooperation of the mass media (including those in Windsor, Ontario) in withholding news of the event and then in down-playing the extent and intensity of the disturbance. The Civil Defence Director was not notified of the riot until 5:00 p.m. (it started 14 hours earlier) His staff had recently been drastically reduced (from 29 to 3) due to a budget cut. Thus, representatives of other city departments felt that the Civil Defence office was not functioning and they consequently did not report to the emergency operations centre at Civil Defence headquarters, as their plans indicated they should. From the outset Civil Defence was cast in an almost marginal role. In addition, like Red Cross, Civil Defence was caught in a position of legislative ambiguity with regard to whether it could legally become involved in responding to a riot and if so, what its responsibilities therein should be.

Red Cross and Civil Defence cooperated in opening five shelters capable of housing at least 300 people each. A maximum of only 40 adults did avail themselves of this service. Another 200 went to a local hotel which was operated in normal times as an emergency (short-term) shelter by the county Department of Social Services. Another public welfare organization (our data is unclear as to which task area it serviced) reported that even though it put on an additional 20 workers, it received less than 50 registrations.

The Salvation Army operated its canteen service for the social control agencies, leaving the public for other agencies to help. A further division of labour had the Salvation Army responsible for distributing clothing (they were inundated by the usual over-response of donations here). The Salvation Army also opened a furniture centre and serviced the spiritual needs of the troops.

The Red Cross also provided services to the military. These included supplying athletic equipment to an off-duty (but "on alert") unit and handling 82 personal family problems of the troops (such as taking pregnant wives of troops to hospitals). In addition, it handled 921 inquiries about friends and relatives from other Red Cross chapters across the country. However, it had a policy that no one in police custody was to be given relief. Also the Red Cross was reluctant to move into the task area of registration and inquiry since it felt that registration implied an offer of assistance and it was unable to move into the long-term rehabilitation realm for financial reasons. Thus, the Community Information Services organization, a branch of the local "United Appeal," handled most registration and inquiry.

The federal Department of Agriculture contributed flour and soybeans from its reserve food stocks but this was regarded by recipients as inappropriate and undesirable.

Another established welfare organization ran a Prisoner Comfort Program which supplied prisoners with soap, toothpaste, and toothbrushes. However, this programme ran into political difficulties due to the presumption on the part of the public that the prisoners were guilty.

Although we have stated that there was a gap created due to the inadequate response of established welfare agencies it is evident that they were not altogether dormant. In fact several such agencies responded by loaning experienced social workers to the emergent welfare organization, the Interfaith Emergency Center. (Social workers were also provided by the Schools of Social Work at nearby universities.) However, the very fact that organizations such as Red Cross, Salvation Army, and other established public welfare agencies were referring clients to the Interfaith Emergency Center demonstrated the former's lack of preparedness.

The Interfaith Emergency Center (IEC) itself was created on the second day of the riot by an inter-denominational group of clergymen who had worked together previously on social action projects in race relations. It was intended as merely an information centre which would collect and dispense information related to the disturbance. It was based on a plan developed by the Episcopalian (Anglican) church after its experiences in the Watts riots.

The IEC set up headquarters in a building housing the Episcopal Cathedral and diocesan offices. They publicized their existence over the mass media and were immediately flooded with telephone calls. Contrary to the purpose of the organization these callers were asking how they could volunteer help or how they could obtain help. It became evident that the need was for a "brokerage" which would connect individual needs with community resources and services. The Center began by matching individual needs with individual offers—but as suburban churches started collecting food for riot victims, the IEC quickly became a coordinating centre. Using volunteer truck drivers (from the United Auto Workers union) and trucks donated by major companies they established a distribution department which dispatched drivers to 25 collection centres and 21 distribution centres.

The mayor's formal recognition provided the necessary legitimacy to integrate IEC into the total community emergency response.

A fairly stable structure developed within the IEC. This included a distribution department, a needs department, a volunteer department (organizational maintenance fuctions), and an information department. The needs department, staffed by professional social workers, and granted considerable autonomy, handled referrals and special requests that required the dispatching of a volunteer to the caller's home. Emotional counselling of troops was also performed.

We might add, parenthetically, that the social workers enjoyed being free of the restrictions of eligibility requirements and other bureaucratic procedures. They derived immense satisfaction from being able to help people when they needed it without making them forever dependent upon relief.

We could go on and discuss the operations of this organization, but this information is available elsewhere.* Suffice it to say that from July 30 to August 4 the organization gradually phased out its food distribution operations. Until November 17, 1967 it followed up and attempted to close all cases initiated during the original emergency response period and those cases that could not be closed were referred to existing social welfare agencies within the community.

Let us now consider some problems which may arise for an emergency welfare services organization responding to a riot, as suggested by the experience of some organizations in Detroit. These problems fall into three general areas: internal operations, external relations, and relations with clients. They are discussed in that order.

One of the basic differences between disasters and civil disorders is that the former is set in a context of a fundamental community consensus while the latter is set in a context of overt and hostile community conflict. This difference creates a major problem for any organization which functions to meet emergency needs. And when an organization is identified by certain segments of the rioting population with the government "establishment," as EWS may indeed be, these problems are multiplied. Thus, for instance, we have the case of workers in the Civil Defence office building turning the lights out at night and answering telephones with flashlights, due to a fear of snipers. The necessity of closer coordination with police arises here too. This may involve assigning special liaison personnel, with particular emphasis being placed on developing a workable system of passes to provide for the security of welfare centre employees. The welfare centre must also be able to provide food and lodging for the centre's staff, since any staff member who stays at the centre beyond the beginning of the curfew must remain all night. Even communications and transportation are adversely affected by the conflict setting. Thus, we find that IEC was unable to have more telephone lines installed to relieve their congested switchboard because the military forbade the telephone company pole men to mount the poles because of the danger of snipers. The disruption of the transportation system due to cordoning off of the riot zone and the halt of the public buses resulted in coordination difficulties since it caused people to be late for organizational meetings. And finally, the presence of overt conflict also heightened some problems of role conflict above and beyond what we have found in other disaster situations. Thus, in a disaster the post-impact absence from the home of the male head of the household who is a disaster organization employee results mainly in inconvenience to his family. However, in a civil disorder, "impact" may be more prolonged and his absence from the home may result in continuing danger to himself and his family. This is a source of conflict between his roles as official and family man.

One of the largest problems faced by the IEC in its internal operations was that of volunteers. Here we find the usual problems plus some new ones. One of the common problems was the convergence of too many volunteers due to so many people being off work the first two days. IEC handled this by setting up an intercepting or screening desk at the front door, where the skills and times of availability of the volunteers were recorded. (This screening desk also helped relieve the immense physical congestion within the centre.) However, there was still the problem of taking full advantage of the skills possessed by the volunteers. Some volunteers who held decision-making responsibilities in their normal jobs were given menial tasks to perform for IEC resulting in job dissatisfaction. The daily turnover of volunteers also required a programme of socializing or "indoctrinating" the new volunteers into their task responsibilities. Another common problem with volunteers is their anonymity. IEC eventually provided name tags to all personnel to facilitate communication. Another minor problem was that some volunteer personnel in the distributing department of IEC seemed to display favouritism in routing the incoming goods to the various distribution centres. And finally, a problem perhaps peculiar to riots was that some volunteers were motivated by guilt and did not necessarily have useful skills to contribute. Some volunteers were outright racists and had to be dismissed.

Another staff problem was that workers became tired, over-worked, and irritable due to the very long hours they put in. (Some workers even refused to go home. They seemed to have an intense need to be needed.) This resulted in some minor problems of interpersonal communication.

As in disasters, a major problem of IEC was organizational intelligence. Three dimensions stand out as particularly important here. The first was the need

*See Thomas R. Forrest "Emergent Communal Response," Disaster Research Center Reprint #9 or pp. 86-103 in Leonard Gordon (ed.), *A City in Racial Crisis—The Case of Detroit Pre- and Post- the 1967 Riot* (Dubuque, Iowa: Wm. C. Brown & Co.), 1971.

for "informers" (e.g., black priests) who could contribute some assessment of the need in the community for IEC's services. The second dimension concerns the shortage of people who had a thorough knowledge of the city. We have reference here to geographical knowledge, knowledge of community resources, and, especially in the "referral" division of IEC, knowledge of the other welfare agencies in the city (what services they do and do not perform). The police also served as a source of organizational intelligence, which was an unintended consequence of IEC's services to the police. Thus, an informal exchange relationship developed here.

A final internal operational problem was described by one IEC official as perhaps the most basic. This was the problem of adapting from week to week to a changing and uncertain environment. Here this official cited his inability to plan very far into the immediate future due to not knowing what financial resources would be available.

Let us move on now to problems in the realm of external relations with other organizations. The most salient feature here was the conflict and resentment which developed between IEC and some established organizations. First, Civil Defence appeared to resent the encroachment of the emergent IEC organization on its traditional domain. At the same time, IEC resented Civil Defence's suggestions on how IEC should carry out certain minor tasks such as picking up bread from a bakery. IEC also resented the late "blossoming" of some established welfare agencies and took the attitude "where were you when the need was the greatest?" (i.e., when the riot first started). IEC was also seen by some established organizations as a liberal threat (as exploiting the situation to further its own liberal political ideology). It was also seen as an organization which was trying to down-grade and interfere with the actions of the established organizations.

Another source of strain in external relations was the differing definitions of certain situations. For example if a person had been given enough money for milk for a week (according to the charts of the established welfare organizations), then the established agencies felt that he should get only that amount. However, IEC felt that he should be given more money since his financial needs increased due to the existence of profiteering.

Perhaps the most crucial problem involved the conflict which emerged around the issue of when the IEC should be phased out. Civil Defence saw "repeaters" in the welfare food lines as frauds and pointed to their existence as indicative of the need to phase out. They also emphasized the need to allow the local economy to resume operations. However, as an unofficial agency IEC was able to be more flexible. IEC felt that as long as a need for its services continued to exist, it would operate. IEC also took the stance that "if three hundred needy persons gain help even while three hundred repeaters come through the lines, then that is a risk we are willing to take." However, this issue even created conflict within IEC and the existence of repeaters also was a source of low morale on the part of the staff of the welfare centres. Thus a carefully considered prior policy on the stance which the EWS organization will take towards repeaters and phasing out appears to be an important priority, if it does not exist already.

A third problem of external relations was the overloaded switchboard of IEC. Other agencies who wanted to cooperate with IEC became exasperated at not even being able to get messages through to IEC and now points out the need for having organizational linkage via "ham" radio operators or by means of liaison personnel. Liaison personnel with other welfare agencies are important in order to keep abreast of their changing capabilities and resources, especially as they relate to one's own organization.

And finally a minor problem of external relations involved the matter of "crank" telephone calls peculiar to the conflict setting of the riots. Two examples of crank calls involved the threat "We're coming down with guns and fire . . ." and the suggestion "Why don't you come and pick up my garbage and give it out in the riot area?"

The last area of problems involved relations with clients. Foremost here is the problem of repeaters or "opportunists" who made the rounds of the welfare centres receiving goods. (Some did not even live in the riot area.) This problem of "exploitation" appears also in natural disasters. It is probably best viewed as a social class phenomenon. That is, it may be seen as an extension of looting activities whereby the disadvantaged classes take advantage of the redefinition of property norms (that is relinquishing claims to property by donating it to IEC). They consider it quite just to gain all they can now since they have been unjustly deprived in the past and will be in the future.

Another problem in client relations is the placement of minority group members in the homes of dominant group families who have opened their doors to the displaced. IEC found that the minority group families were reluctant to enter the homes of strangers especially where the latter were located in segregated neighbourhoods. The displaced families were more likely to move in with friends or relatives. This created problems since it would take a while before the strains created by overcrowding would cause the family to leave and seek the help of emergency welfare organizations. The organizations either had to contend with this time lag or develop a programme of aggressively taking the initiative and reaching out to clients who had not yet come forward on their own. IEC also found that it was necessary for them to take the initiative in many cases where potential clients were apathetic and had developed a life style of accommodation with their subsistence.

The final problem to be mentioned here involved a dilemma as to the domain of the emergency welfare

(*Continued on page 22*) **EMERGENCY WELFARE**

EMERGENCY PLANNING IN ONTARIO

by
N. W. Timmerman
Director, Emergency Measures Branch

The following address was delivered to the Halton County Council, October, 1971.

Thank you very much for inviting me here to speak to you this afternoon, on the Emergency Measures program, and how this relates and affects the people of Halton County and yourselves as their representatives. As you probably know, the purpose of the Emergency Measures program is to develop in peacetime, within the framework of the Federal national civil emergency measures program, plans and preparations at all levels of government which will increase the ability of the Canadian people to survive and recover from any war or major peacetime emergency.

The responsibility of the Emergency Measures Branch of the Department of Justice, of which I am the Director, is to assist and coordinate in the development and operation of all the plans of the Provincial government departments, of all the Boards and of all the Commissions in Ontario, and similarly at the Municipal level to supervise and administer a program of assistance to Municipal governments to help them prepare such plans and preparations to meet wartime and peacetime emergencies. For this purpose the Federal government has allocated, what in my opinion is a modest sum of money as compared to the military aspects of our defence policy. As you know the Province, like yourselves, provide matching funds in a cost sharing program to carry out these activities, this is on the basis of 75% Federal, 15% Provincial, and 10% Municipal. With the freeze of defence funds for the past two years which is still continuing, and with costs as you know increasing, things have been very tight indeed, but, we have managed to continue across the Province in carrying out the essential elements of the program and have participated directly in several major emergencies, notably the Air Canada crash of last year, and the Sudbury/Lively windstorm among others.

You will note in front of you that there is a document called "A Guide to Effective Planning for Peacetime Emergencies" which I will return to in a moment. However, the document I have in front of me is the Defence White Paper, which was recently issued by the Department of National Defence, and in it states as follows—discussing the defence of North America—"the only direct external military threat to Canada's national security today is that of a large scale nuclear attack on North America. In the defence of North America, Canada is inevitably closely associated with the United States. Even if no warheads actually land on Canada in the event of nuclear war, a strategic attack on the United States which could leave 100M dead would have cataclysmic consequences for this country. From the potential enemies' point of view, North America can only logically be seen as one set of targets. Canada's centres of population and industry logically form part of the major target plan for a strategic nuclear attack on North America, closely concentrated along the St. Lawrence and the lower Great Lakes regions, virtually all close to the Canadian/U.S. border, and the Canadian and U.S. economies are highly integrated. Regardless of the circumstances leading up to such an attack, logically for geographical reasons, if for no other, we must plan on the basis that we shall inevitably be gravely affected."

This last year we asked our Coordinators to take the results of the Federal Fallout Shelter Survey which analysed all the potential shelter in buildings, public and private, of certain size, and we asked them to go and physically examine these buildings to find out what kind of shelter was available, that could be used for public shelter as opposed to fixing up a shelter in your house. This produced some amazing figures showing that there is a tremendous potential across Ontario for sheltering our people in case of a nuclear war. Unfortunately, however, there appears to be no Federal policy to get on with this at the moment, and we are confined to working on these figures and preparing contingency plans. In Halton County this survey has been partially completed and we would hope when you get a new Coordinator this can finally be completed so that you will get some idea of what shelter there is available in public buildings.

The present assessment of the possibility of a nuclear war, in the opinion of the Federal government at this time, appears to be that although very real it is remote, and it is on this low-key approach that our wartime planning is now taking place. Some people say that the threat of war is remote, but without overstressing the point, I would like to draw your attention to the fact that just 25-minutes flying time over the North Pole there are over 1,000 missiles with nuclear warheads. I find it difficult to dismiss this as a remote threat.

Getting back to the more palatable and more interesting likely type of emergency for which we should plan are those in peacetime. We have of course been working on these as well as the nuclear war plans and in the coming months we are going to place continued and increased emphasis on assisting the municipalities to prepare for a coordinated response of all their services to meeting peacetime emergencies. As a step in this direction we have recently produced this new manual, which I said before was in front of you,

"A Guide to Effective Planning for Peacetime Emergencies", and if you will just look at the foreword here, signed by Mr. Lawrence, Minister of Justice, this explains the purpose of it, and I read, "This new Manual entitled "A Guide to Effective Planning for Peacetime Emergencies" has been produced to assist all officials with responsibilities at the Municipal level, in the formulation of plans and procedures needed to deal with peacetime emergencies. In our increasingly complex and technological society, peacetime emergencies of a man-made nature are on the increase to add to the natural emergencies which man has always faced. Since the initial response to such emergencies is almost always at the Municipal level, it is important that each municipality have a plan prepared for the coordination of all essential services to meet the stress of these emergencies in the most effective way and to avoid duplication of effort. Each such plan when completed should be presented to the concerned Council for approval and enactment as a By-law, thereby giving legal authority for any additional measures that need to be taken to deal with the emergency."

If you will just turn over a page you will see in the Table of Contents, the first pages are devoted to just stating general principles of planning, the second section sets out in some detail what are the various responsibilities that need to be covered in writing a plan, and then the last three and four sections sets out the responsibilities of certain Provincial and Federal departments. I think you will be quite interested in the increasing degree of involvement that most government departments are getting into in handling emergencies of all shapes and sizes, and depending, of course, on the size of the emergency, these people would get involved. But I come back to the purpose of this Guide which is to help elected and appointed officials at the municipal level, to pull their thinking together and pull their planning together, to meet emergencies at your level because this is where the action is going to start. If a situation develops and escalates into a big one, obviously the senior governments and all the various agencies are going to come in and help, but the municipalities should make the initial response because they are first on the spot. This is most important, especially when lives are in danger, since time is of the essence.

I would like to dispel if possible, the misconception which continually creeps in that this thing called EMO or the Emergency Measures Organization is some kind of a separate organization like the Red Cross or St. John Ambulance or something like this, and has a small army of volunteers and people who are going to take over in case of emergencies. The Emergency Measures Organization which is established by By-law, consists of the participating municipalities of a county in Southern Ontario, and it has two committees, an Executive Committee, usually headed by the Mayor of the largest city, and Co-Chairman, the Warden of the county, with representatives from each municipality,—elected officials. These people comprise the Executive Committee of the Emergency Measures Organization of that county, and they set the policy for the Emergency Measures Organization. So what we are really talking about is the government of the county and representatives of the municipalities in that county. Under them they have the service chiefs, that is the Police Chief, the Fire Chief, County Engineer, Health, Welfare and so on, representatives of these groups to carry out the various services of the municipalities, and they are the Planning Committee who will plan for the various functional services, and how they are going to coordinate if something really big happens. To assist both the Executive Committee and the Planning Committee, is a full-time municipal employee, I repeat, a municipal employee, he is your man, called an Emergency Measures Coordinator, and this man is responsible to the Emergency Measures Committee for helping the Emergency Measures Organization of Halton County, in your case, to plan and prepare for any emergency in the best way. I might add, that there are forty-five such Emergency Measures Organizations in Ontario, covering over 800 of the 900 odd municipalities, and they are all extremely busy and active, and they will become increasingly so now that we have placed this new manual in their hands that we believe will be of tremendous value to them in getting prepared to handle emergencies. It has received very favourable response so far from many areas and we think it will be of great value to you here in Halton County.

Mr. Davies, who is our Provincial field man for this southwest area of Ontario has been working very closely with the Chairman of your Committee and the Warden and the Clerk, Mr. Brown, reviewing the current state of the Emergency Measures program in Halton County, following the resignation of your Coordinator, Mr. McGregor, who served the County for some 13 years. There is a tremendous amount of work to be carried out to implement the recommendations that we have made in the planning manual for peacetime. Of course, there is the continuing updating of the wartime aspects of planning which is the primary interest of the national program, which is constitutionally the concern of the Federal government which is responsible for all defence matters of which this is a most important part.

As I said before, earlier, with the freeze of defence funds by the Federal government, money is very tight but we are able to subsidize the salary of a full-time Coordinator and give him the necessary stenographic help. Given the right man, I am sure that he will prove to be an invaluable addition to your governmental team, who are responsible for providing leadership and guidance to the people of Halton County. You may also rest assured that we in the Emergency Measures Branch in Toronto, and Mr. Davies in the field, will be only too eager to assist in any way possible, to strengthen the Emergency Measures program, and the carrying out of the program in Halton County, which

(*Continued on page 22*) **EMERGENCY PLANNING**

TOWN PLANNING FOR LOCAL CIVIL DEFENCE

by
Sigfred Samgard
Head of the Local Civil Defence of Roskilde, Denmark

In Denmark—as provided in the Danish Civil Defence Act of April 1, 1949—a fire service, an emergency water supply service, a rescue service, a clearance service, a billeting and feeding service, and a technical service are to be organized and maintained in the Civil Defence Areas, which largely correspond to the previous municipalities, all to such extent that these services will be able, within the respective areas, to remedy the consequences of war actions on a limited scale and to go into immediate operation in the event of large-scale damage.

Civil Defence Tasks

The scope of the tasks with which the Civil Defence forces may be confronted will depend on conditions in the various towns, and directives for the organization of each respective service have been issued by the Minister of the Interior.

Fire Service

As far as the fire service is concerned, it should be pointed out that the primary objective of the war preparedness planning must be to prevent fires that have arisen from developing into conflagrations. This will require a considerable effort, and calculations made on the basis of experience gained in Denmark and in a number of other countries shows that approx. 600 litres per minute per 1,000 inhabitants is to be considered the average figure for the pumping capacity which, in the event of war damage on a large scale, must be immediately available for the purpose of keeping the fires under control until the necessary long-range aid arrives and final fire-fighting operations can be implemented.

Rescue Service

As far as the rescue service is concerned, the size of the force of personnel reqiured will depend on various factors. Some of these are known in advance and may therefore be used as a basis for the planning. The most important of these factors are: the population and the extension of the area, the character of the buildings, and, possibly, geographical boundaries, such as expanses of water.

To these must be added, however, a number of unknown factors, such as the type and size of the means of attack, the density of population in the attacked area at the moment of attack, and the cover under which the population is staying, factors decisively influencing not only the number of trapped persons, uninjured as well as injured, but also the proportional distribution of the number of victims on the groups: slightly injured, severely injured and dead, as well as the absolute number of injured and dead, and consequently the scope of the tasks with which the rescue service may be confronted.

It follows from the foregoing that it is not possible to set up a general rule as to the most appropriate size of the force of personnel to be available to the rescue service. Calculations show, however, that when planning the rescue service in a Civil Defence Area it would be advisable to reckon with a force of personnel of approx. 1% of the number of inhabitants.

Clearance Service

As far as the clearance service is concerned, the dimensioning must be made on the basis of an overall evaluation of all such characteristics of the area as may influence the extent and distribution of the ruins and, consequently, the size of the force of personnel as well as the type and quantity of equipment to be employed if the rescue service is to succeed in accomplishing its tasks. Factors decisively influencing the extent and distribution of the ruins in the streets are: the character of the built-up area, the height of the buildings, the structural design of the buildings, and the width of the streets.

A review of conditions in a number of Danish towns has shown that as far as these towns are concerned, it will be advisable to reckon with a force of personnel of about 4 to 6% of the number of inhabitants.

I do not consider it necessary to go through all the different services' dependence on information for dimensioning purposes in order to prove that no hard and fast rules can be set up for the dimensioning of the local Civil Defence.

The Need for Analysis

The directions so far issued for the individual services have called attention to the factors to be taken into account when estimating the number of Civil Defence personnel to be employed.

In a national planning, where local deviations from the general rules will be eliminated, average values are both applicable and required. The local planning, on the other hand, must be adapted to the dimensioning dictated by existing conditions.

In connection with the amendment of the Danish Civil Defence Act in 1962, a new section was inserted, according to which conscripts are recruited for the Civil Defence Areas, where part of the compulsory training will be provided. This has resulted in increased development activities within the local Civil Defence. In step with this development a rising need was felt for

a method to estimate the influence of the different factors and the proportional weight to be attached to these factors in the dimensioning.

Preparation of a Guide

In consequence hereof, a committee was set up by the Danish National Civil Defence Directorate, comprising representatives of the Civil Defence Directorate, the Civil Defence Regions, and the Civil Defence Areas.

The committee was entrusted with the assignment of working out regulations for the implementation of a Civil Defence town analysis, the objectives of such analysis being to compile, process, and record a number of data of importance to the planning and development of the Civil Defence as well as to training and operations. In 1968, the result of the committee's efforts was submitted in the shape of a Guide to a Civil Defence Town Analysis.

Components of the Analysis

Considering that the committee had been set up for the purpose of establishing a method to compile the information required by the different services, the first step towards the preparation of the Guide was an assessment of the overall need. On this basis it was found that the analysis can be broken down into a number of individual analyses: population analysis, building analysis, fire analysis, basement analysis, and locality registration.

It is a common feature of all the analyses that reliable information is required about the conditions existing in aggregate areas of the town and not in the individual buildings, considering that Civil Defence—in contradistinction to e.g. the peacetime fire brigade—must be able to take an overall view of the situation for the purpose of its tactical assessments and dispositions.

Since, as already stated, the town analysis is to be used for purposes of planning, training and operations, the results must be given in a clear form and be immediately applicable. With a view to this, a number of symbols have been worked out for each individual analysis. Transparencies are prepared for each analysis, containing the symbols laid down.

Population Analysis

Through the population analysis information is to be obtained about the size of the population and about the locations at which the inhabitants are staying, the central questions being: How many persons are there in the town? Where do they stay? When are they staying at the locations concerned?

In order not to operate with too many figures, we have chosen to record the size of the day and the night population respectively, i.e. the number of persons staying in a specified area between 6 a.m. and 6 p.m. and between 6 p.m. and 6 a.m.

The town is geographically divided into three types of uniform areas with respect to population: purely residential areas, in which the night population is much larger than the day population, purely non-residential areas with a small or no night population at all and a large day population, and mixed areas, in which conditions vary considerably.

In the actual situation the population figures must be estimated with due consideration to the existing conditions. Rush-hour traffic, season (holidays), evacuation, etc. are among the factors influencing the figures.

Building Analysis

In connection with the Civil Defence assessment of the buildings of a town, the following four questions are of predominant importance:

- What is the stability of the buildings?
- How densely is the area built up?
- What is the height of the buildings?
- What are the buildings used for?

In illustration of the stability conditions, the buildings are divided into the following five categories:

1. Reinforced concrete buildings and reinforced concrete frame buildings, cast in situ.
2. Brick buildings with reinforced concrete floors.
3. Brick buildings with hollow block floors.
4. Brick buildings with wooden floors.
5. Prefabricated reinforced concrete buildings.

The division follows a falling scale with respect to stability, so that the first category is the most stable and the fifth the poorest. These five groups represent the greater part of the buildings existing in Denmark.

Hence, the division will provide a survey of the buildings that may be expected to be reduced to debris as a result of an attack and the degree of the destruction.

It will not be sufficient, however, to determine the buildings which in an emergency will be liable to collapse and the extent of the collapse, it will also be necessary to find out to what extent they will fill up the streets. This is illustrated by information about density of buildings and height of buildings.

In connection with the assessment of the buildings it will also be necessary to obtain reliable information about their application. Here, distinction is made between residential and non-residential buildings—a division already made in connection with the population analysis.

Fire Analysis

Through the building analysis information is obtained about the stability of the buildings and the ruin situation consequently to be expected. This information will give us an idea of the extent of the tasks with which the rescue and clearance services may be confronted.

In estimating the extent of the fire service operations, a number of other questions will be of importance: What is the fire hazard of the buildings? Where can the fire be checked? Where is water to be found?

For the purpose of determining the fire hazard of the buildings, information must be obtained about the structural design, height, and application of the buildings.

As far as structural design is concerned, distinction is made between buildings with a high wood content and buildings with a low wood content, and as far as application is concerned, distinction is made between residential, non-residential, and mixed residential and non-residential. This division of the town was already made in connection with the population analysis.

The mentioned factors are given proportional figural values, which form the basis for the calculation of a fire index. The higher the fire index, the higher the fire hazard.

For the purpose of establishing possible check lines for fires that have arisen (fire breaks) information must be obtained about the width of the streets and the height of the adjacent buildings. The fire breaks are divided into three classes, each of which will determine the extent of the fire-fighting operations required in order to check the fire.

Indication on the map of existing water supplies will disclose the places at which the establishment of emergency water supplies will be required.

Basement Analysis

The Guide now prepared contains a chapter dealing with the calculation and recording of the protection factor of each individual building. This method, however, is at variance with the general principle, according to which information about aggregate areas of the town is to be recorded. For this reason we have prepared a draft of a summary basement analysis calculating for small aggregate areas with buildings of a uniform character with respect to protection (1) the size of the protection factor and (2) the number of spaces available in basement rooms with a protection factor exceeding 40.

In this way a survey of existing protective possibilities is provided and also a basis for developing the shelter capacity of a town.

The mentioned amendment is of recent date and has therefore not yet been incorporated in the Guide. When this has been done, the amendment will be translated and be issued as a corrigendum to the Guide.

Example of an Individual Analysis

A Civil Defence town analysis is a very comprehensive and time-consuming task, the accomplishment of which would be almost impossible for the great majority of local leaders if a large material collected by other municipal administrations had not already been available. Even if the other municipal administrations are not to use the information for the same purpose as that for which it is to be used by the Civil Defence, the information required, for example, by the school authorities for the purpose of developing the school system will be identical to that included in the Civil Defence population analysis. The social welfare system will also be in need of information about the population for the purpose of planning the construction of institutions etc.

Thus it would be possible to mention numerous examples showing that Civil Defence leaders and other planners have identical needs for information.

This fact has been recognized by a number of municipalities, and a coordinating body through the agency of which information is made available to the individual administrations has therefore been established. By way of example, I am going to demonstrate to you the very valuable material placed at my disposal by the planning secretariat in my own town, Roskilde.

The town is divided into a number of districts, which may be classified in a smaller number of typical districts with common characteristics. My own division of the town into analysis areas is based on this division into districts.

Each district is in its turn subdivided into a number of subareas according to type and application of the buildings.

On the basis of the information stated in the tables for the individual districts I will be able, for the purpose of my fire analysis, to make a division into the three categories: residential, mixed, and non-residential.

Next, I will have no difficulty in estimating the night population in each individual subarea when knowing the total population in the municipality and the total number of dwellings, the latter number being indicated in the table.

Conclusion

As the local Civil Defence planning is largely determined by specific conditions, the leaders of the local Civil Defence must keep in intimate contact with the other municipal bodies.

As a result of this contact, predictable changes in the population and building conditions can be included in the planning, and another, extremely important consequence is that the basis for the planning can to a great extent be obtained from other administrations, whereby the work of the Civil Defence will be reduced. However, no matter how much information is obtainable from other authorities, a considerable task will be incumbent on the local Civil Defence with respect to processing the data obtained.

Most people will have a more or less clear feeling of what the situation is like in their own town with regard to the conditions dealt with in the town analysis. This feeling will, through the analysis, be changed into certain knowledge, which clearly can be read from maps and transparencies.

This knowledge is a necessary prerequisite for the organization of an effective local Civil Defence.▲

TSUNAMI...*(Continued from page 3)*

Tsunami warnings has indeed been a rocky road; at times strewn with trials, dashed hopes, frustrations and disaster.

Indeed, existing records strongly suggest that if it were not for dedicated emergency agencies, such as Canada E.M.O. and British Columbia Provincial Civil Defence, it is questionable whether Canada would have a Tsunami warning capability even now.

The existence of the warning system is concrete evidence of the permanent need for emergency oriented agencies in our modern governmental system. Canada's present participation in the system clearly shows that civil emergency preparedness is a full time job not to be relegated to any agency as a secondary or part time task.

Since receiving the first Tsunami warning on February 3, 1965, the system has continued in use constantly 24 hours a day and every day of the year.

The Tsunami Warning System, a truly international life saving co-operative; today providing all the Tsunami protection that is at present possible, must of necessity hold a lofty position of esteem and priority with civil emergency agencies in the Province of British Columbia with its extremely long and exposed coastline.▲

EMERGENCY WELFARE *(Continued from page 16)*

organization. That is, toward the second week IEC began to be confronted with valid welfare needs of clients which were not riot related. The organization's response here was to refer the client to established welfare agencies.

Conclusion

It is most apparent that the welfare response of the city of Detroit was governed by one over-riding factor—the welfare organizations were unprepared for a riot. For Canada to be unprepared is inexcusable. The recent riots in the United States have provided us with the opportunities for learning and for adapting our plans without having to travel down the trial and error path ourselves. But one case study does not provide an adequate basis for planning. I conclude by urging you to correspond with welfare organizations in other cities which have experienced riots to find out what lessons they have learned.▲

EMERGENCY PLANNING *(Continued from page 18)*

is one of the more important areas in Ontario and unfortunately, from a war point of view like most of Southern Ontario, in one of the more vulnerable areas. A full report has been given by Mr. Davies to the Chairman of the Emergency Measures Committee, Reeve Masson, who will, I am sure, be discussing these matters with the Emergency Measures Committee at the next meeting, and I am sure will be informing you as Council of the plans for the Emergency Measures Organization of Halton County, for which we wish all success and progress, and again, offer our whole-hearted support.▲

EMO NATIONAL DIGEST

Index 1971

Vol. 11 No. 1—February-March 1971

BLAST SHELTER TEST—1970 ..... *William A. Johnston and Jon P. Nielsen*
STUDY OF WARNING SYSTEMS ..... *Report*
"HOT LINE" TO THE PEOPLE ..... *Bob Nash*
PEACE RESEARCH—THE SCIENCE OF SURVIVAL ..... *Bert V. A. Röling*
AUSTRIA'S CIVIL DEFENCE (PART I) ..... *Josef Hans*
EMO NATIONAL DIGEST INDEX—1970

Vol. 11 No. 2—April-May 1971

EMERGING CONCEPTS IN CIVIL EMERGENCY MEASURES ..... *C. R. Patterson*
DISASTER DECISIONS AND THE MAYOR ..... *Burke Stannard*
AUSTRIA'S CIVIL DEFENCE (PART II) ..... *Josef Hans*

Vol. 11 No. 3—June-July 1971

CIVIL DEFENSE—MOSCOW ..... *Translation*
REGINA EMO RESPONSE TO FLOOD ..... *Harry Walker*
DECISION INFORMATION DISTRIBUTION SYSTEM—OCD ..... *Reprint*

Vol. 11 No. 4—August-September 1971

FALLOUT SURVEY OF CANADA ..... *K. G. Farrell, A. G. Jordan*
INDUSTRY'S ROLE IN THE NATIONAL CIVIL DEFENSE PROGRAM ..... *Virgil L. Couch*
PARISH WAR EMERGENCY PLAN ..... *Brig. T. E. H. Helby*
DISASTER PREVENTION—JAPAN ..... *Article*

Vol. 11 No. 5—October-November 1971

EMERGENCY PUBLIC INFORMATION PLANNING ..... *A. M. Stirton*
CIVIL DEFENSE—MOSCOW 1969 ..... *Extract*
BLUEPRINT FOR INDUSTRIAL DISASTER READINESS ..... *Virgil L. Couch*

Vol. 11 No. 6—December 1971-January 1972

BRITISH COLUMBIA FLASH FLOODS ..... *B.C. Health Services*
EMERGENCY PLANNING IN INDUSTRY ..... *A. F. Wigglesworth*
ORGANIZING FOR SELF-HELP IN EMERGENCIES ..... *Virgil L. Couch*
NATO CIVIL DEFENCE COMMITTEE—1971
FRENCH MILITARY-CIVILIAN COOPERATION ..... *J. Perreau-Pradier*
SHELTER POLICY IN THE NETHERLANDS ..... *P. J. M. Ruyters*
U.S. CIVIL DEFENSE TAKES A NEW DIRECTION ..... *Hon. John E. Davis*

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